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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/418,286 04/07/95 SCHWARTZ

EXAMINER
E

ATTORNEY, C. PAPER NUMBER

34M1/0829

5

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DATE MAILED:
3487

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

08/29/95

☒ This application has been examined ☒ Responsive to communication filed on 7/5/95 7/12/95 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-22 are pending in the application.

Of the above, claims 9-10, 14-16 and 19 are withdrawn from consideration.

2. ☐ Claims have been cancelled.

3. ☐ Claims are allowed.

4. ☒ Claims 1-8, 11-13, 17-18 and 20-22 are rejected.

5. ☐ Claims are objected to.

6. ☐ Claims are subject to restriction or election requirement.

7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on — Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on — has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed —, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. —; filed on —.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Response to Election

Applicant's election with traverse of the species as illustrated in Figure 1 in Paper No. 4 filed July 17, 1995 is acknowledged. The applicants arguments of the species as illustrated in Figure 2 is found persuasive and Figure 2 is not considered a distinct species. Regarding applicants arguments relating to the species as illustrated in Figure 8, the specification on page 9, lines 9-15 describes an "other modification" where the "internal return bends are removable (see Fig. 8)" and on page 10, lines 1-2 recites "internal return bends and return wedges are also welded" which is considered non-removable. Therefore, Fig. 8 shows a different modification than Figures 1 and 20 and is a distinct species. The applicants arguments relating to the species as illustrated in Figure 12 is found persuasive since the recitation "simmetrical step-like" in claim 17 and in Figure 12 is considered the same cross-section as semi-hexagonal as shown in Figure 1. However, an error was made in applicants Figure 12 argument which recites "semi-octagonal external return bends shown in Fig. 1". Page 12, lines 6-10 recites Figure 1 having a semi-hexagonal shape external bend and not a semi-octagonal external return bend. The specification only states that in other modifications the external return bend may have a semi-octagonal cross-section but does not recite Figure 1 showing this modification. Regarding Figures 20 and 21, page 9, lines 13-15 and page 11, line 9-10 recites Figure 20

having fixed internal return bends and a removable wedge (16) and page 6, lines 18-19 discloses Figure 20 illustrating removable internal return bends which contradicts the above disclosure. Therefore, the recitations directed towards Figure 21 was unclear and was treated as a distinct species from Figure 1. Since applicant states Figures 20 and 21 have "removable internal return bends" in his arguments, then Figures 20 and 21 are considered only one species having a "removable internal return bend" which is different than the permanent internal return bend of Figure 1. On page 6, line 20, Figure 21 illustrates a removable internal return bend is clearly different from the permanent internal return bend of Figure 1. Page 12, lines 13-15, recites Figure 24 being a modification and individual part of Figure 8. Therefore, Figure 24 is different than Figures 1 and 8 as is considered distinct species. Finally regarding the non-illustrated species of claims 14 and 15, applicant agrees the semi-octagonal and semi-circular corrugated-rib internal return bends are missing from the drawings. Page 12, lines 9-10, discloses modified internal return bends (semi-octagonal shape and semi-circular corrugated-ribs) which are different from the internal return bend of Figure 1 and are treated as species.

Clearly, in view of the specification, claims and arguments presented, this application contains claims directed to specific figures. A claim drawn to one specific figure that is not readable on other figures, is considered to be mutually exclusive

from other claims drawn to other figures. The mutually exclusive claims would be capable of supporting separate patents. See M.P.E.P. 806.04(d), 806.04(e), 806.04(f), 808.01(a) and 809.02(a). Regarding applicants comments about cancellation of claims, if a generic (readable on all species) claim is found to be allowable, applicant is permitted to add claims to additional species as provided by 37 CFR 1.141.

Regarding the above comments, claims 1-4, 7-8, 11, 18, 20 and 21 are generic and there exist species illustrated in Figures 1, 8, 20, 24 and two non-illustrated species of claims 14 and 15.

Claims 1-22 are pending.

Claims 9-10, 14-16 and 19 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected species, the requirement having been traversed in Paper No. 4.

Specification

The disclosure is objected to because of the following informalities: On page 10, line 3, "doors" should be -- door --, page 11, line 11, "Fig. 20" should be -- Fig. 21 -- and on page 12, line 3, "the" should be -- The --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1-8, 11-13, 17-18, 20 and 21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1, the recitations "the sheets" and "the flow" lack antecedence. Regarding claim 5, the recitation "said adjacent sheets" lack antecedence. Regarding claim 18, the recitation "the plugging" lacks antecedence. The remaining claims are included due to dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-8 and 21 are rejected under 35 U.S.C. § 102(b) as being anticipated by applicant cited reference of Ahlberg. The patent of Ahlberg in Figures 1-3 discloses a rigid heat exchanger comprising a plurality of parallel layers (A) inlet duct (C) and outlet duct (D) means conducting hot and cold fluids to the layers (A) in a cross and counter-flow fashion, removable doors (F), removable internal return bends (I) and external return bends (E). The remaining limitations are considered to be clearly met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 5-6 and 11 are rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Watabe. The patent of Ahlberg discloses all the claimed features of the invention with the exception of permanently attached internal return bends, walls and directional baffles and the baffles have rounded off ends. The document of Watabe in Figures 3-5 discloses heat exchanger walls (1,2) brazed together and having baffles (unnumbered) with rounded off end portions for the purpose of

sealing the heat exchanger together and providing a smooth end for the fluid to pass from one side of the passage (38) to the other. Joining plates together by the method of brazing or welding, which are equivalents of each other, is well known in the art of making heat exchangers and welding is considered the obvious design choice by applicant over brazing which does not solve any stated problem or produce any unexpected result. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg welded heat exchanger walls or equivalent of brazing and baffles with rounded off end portions for the purpose of sealing the heat exchanger together and providing a smooth end for the fluid to pass from one side of the passage to the other as disclosed in Watabe.

Claims 12-13, 17 and 22 are rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Nasser. The patent of Ahlberg discloses all the claimed features of the invention with the exception of the internal and external return bends having a semi-hexagonal cross-section and a plurality of vertical parallel layers. The patent of Nasser in Figures 1 and 3 discloses a heat exchanger (FV) with return bends (LB) with a semi-hexagonal cross-section and a plurality of vertical parallel layers (30) for the purpose of creating turbulence and fluidly connecting the plurality of plate layers together. It would have been obvious at the time the invention was made to a person

having ordinary skill in the art to employ in Ahlberg internal and external return bends having a semi-hexagonal cross-section and a plurality of vertical parallel layers for the purpose of creating turbulence and fluidly connecting the plurality of plate layers together as disclosed in Nasser.

Claim 18 is rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Carlson et al. The patent of Ahlberg discloses all the claimed features of the invention with the exception of holes in the baffles. The patent of Carlson et al. in Figures 1-5 discloses holes (16) in the walls (5) in order to allow fluid communication between the heat exchanger sections (4) for the purpose of efficient heat transfer. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg holes in the walls in order to allow fluid communication between the heat exchanger sections for the purpose of efficient heat transfer as disclosed in Carlson et al.

Claim 20 is rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Dziedzic et al. The patent of Ahlberg discloses all the claimed features of the invention with the exception of a transition means adapted to the inlet and outlet means. The patent of Dziedzic et al. in Figure 1 discloses heat exchanger (10) with an inlet (13c) and an outlet (13d) where the inlet and outlet each have a transition (13a, 13b) means/zone in order to allow expansion of the inlet and outlet for the

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purpose of providing a tight seal between the incoming flow and the heat exchanger. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg a transition means adapted to the inlet and outlet means in order to allow expansion of the inlet and outlet for the purpose of providing a tight seal between the incoming flow and the heat exchanger as disclosed in Dziedzic et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Atkinson whose telephone number is (703) 308-2603 (FAX (703) 305-3463/3464).

C.A.
C.A.
August 17, 1995


JOHN RIVELL
PRIMARY EXAMINER
ART UNIT 347